

Amendments of the Claims:

A detailed listing of all claims in the application is presented below. This listing of claims will replace all prior versions, and listings, of claims in the application. All claims being currently amended are submitted with markings to indicate the changes that have been made relative to immediate prior version of the claims. The changes in any amended claim are being shown by ~~strikethrough~~ (for deleted matter) or underlined (for added matter).

1. (Currently amended): A testing system ~~for collecting, storing, and reviewing digital data, serial data, and video data related to events occurring in an automated system comprising a plurality of subsystems comprising an automated controller and at least one peripheral sensor under the direction of the automated controller, the testing system comprising:~~
 - a) a digital signal capture card for sensing and collecting discrete digital signals ~~from the automated system~~ as digital data;
 - b) a multi-port serial port expansion card for sensing and collecting serial digital communication messages ~~between the subsystems~~ as serial data;
 - c) a video frame grabber and compression card for sensing and collecting video signals as video data;
 - d) a device for indexing and storing said digital data, serial data, and video data with time tags, wherein said time tags are used for relating occurrence of a particular item of a particular data type, whether digital data, serial data, or video data, to the most closely time-related data item from the other said data types; and
 - e) a display for control of said testing system and presentation of said digital data, serial data, and video data ~~in separate windows~~ on the display to a user during review;

wherein the digital data and serial data are generated by an automated system separate from and operatively independent of the testing system, the automated system comprising a plurality of subsystems comprising an automated controller and at least one peripheral sensor under the direction of the automated controller;

wherein the testing system collects the digital data and serial data from the automated system;

wherein the digital data, serial data, and video data are related to events occurring under the influence of the automated system;

wherein the testing system stores and facilitates review of the digital data, serial data, and video data;

wherein the display displays each data type, whether digital data, serial data, or video data, in a time-synchronized manner ~~in the separate windows~~ based on the time tags; and

wherein the testing system is used to determine whether the automated system functioned properly during a recorded event by review of the digital data, serial data, and video data.

2. (Previously presented): The testing system of claim 1, wherein digital data are presented in graphical strip chart format on the display during review.
3. (Previously presented): The testing system of claim 1, wherein video data are presented in picture format of still image or time-motion video images on the display during review.
4. (Previously presented): The testing system of claim 1, wherein serial data are presented in time-ordered message sequence on the display during review.
5. (Previously presented): The testing system of claim 1, wherein serial data are presented as recorded in hexadecimal or ASCII format during review.
6. (Previously presented): The testing system of claim 1, wherein serial data are translated according to message parsing rules during review.
- 7-14. (Cancelled)
15. (Currently amended): A method of testing and evaluating an automated system ~~comprising a plurality of subsystems comprising an automated controller and at least one peripheral~~

sensor to determine whether the automated system functioned properly during a recorded event, the method comprising the steps of:

- a) operatively interconnecting a testing system to the automated system;
 - b) collecting discrete digital signals ~~of the automated system~~ generated by the automated system during operation of the automated system as digital data ~~with using the testing system, wherein the automated system comprises a plurality of subsystems comprising an automated controller and at least one peripheral sensor;~~
 - c) monitoring for serial digital communication messages between the subsystems generated by the automated system during operation of the automated system ~~with using the testing system~~ and collecting the serial communication messages as serial data using the testing system;
 - d) collecting video images of the automated system during operation of the automated system as video data using the testing system, wherein the digital data, serial data, and video data are related to events occurring under the influence of the automated system;
 - e) indexing said digital data, serial data, and video data with time tags using the test system;
 - f) recording said digital data, serial data, and video data ~~on a hard disk drive of in~~ the testing system; ~~and~~
 - g) displaying said digital data, serial data, and video data ~~in separate windows~~ on a single display in a time-synchronized manner based on time tags using the testing system; and
 - h) reviewing said digital data, serial data, and video data to determine whether the automated system functioned properly during the recorded event;
- wherein the automated system is operable independently of the testing system.

16. (Previously presented): The method of claim 15, wherein step e) comprises the sub-step of storing said digital data, serial data, and video data on a computer hard drive.
17. (Previously presented): The method of claim 15 further comprising the step of searching said digital data, serial data, and video data for a particular event, a sequence of events, or a combination of events.
18. (Previously presented): The method of claim 15, wherein steps b), c), and d) occur simultaneously over a common time period.
19. (Previously presented): The method of claim 15 further comprising the step of providing a status feedback to a system operator, wherein the status feedback comprises a duration of recording, a current state of said digital data, serial data, and video data, and a total number of state changes of said digital data, serial data, and video data.
20. (Previously presented): The method of claim 15, wherein step b) comprises the substep of monitoring with the testing system for discrete digital signals of the peripheral sensor in parallel without affecting the automated system and collecting the discrete digital signals.
21. (Currently amended): The method of claim 15 further comprising the step of automatically slewing ~~the separate windows of~~ the remaining two data types to a display time selected by a user for ~~one of the separate windows of~~ any individual data type, whether digital data, serial data, or video data, wherein said digital data, serial data, and video data are displayed in separate windows.
22. (Currently amended): The method of claim 15 further comprising the step of regenerating the discrete digital signals from the digital data and serial messages from the serial data and supplying the discrete digital signals and serial messages as inputs to the automated system in a format and a timing of an original sequence of events to simulate the original sequence of events.
23. (Previously presented): The method of claim 22 further comprising the step of evaluating a response by the automated system to the inputs.

24. (Currently amended): The testing system of claim 1, wherein when the user selects a display time of one of the ~~separate windows of any~~ individual data types, whether digital data, serial data, or video data, ~~the separate windows of the~~ remaining two data types are automatically slewed to the display time, wherein said digital data, serial data, and video data are displayed in separate windows.
25. (Previously presented): The testing system of claim 1, wherein the testing system monitors for the discrete digital signals of the automated system in parallel without affecting the automated system.
26. (Previously presented): The testing system of claim 1, wherein the testing system accommodates various data modes of the digital data and the serial data in their original format to and from the automated system without modification of the automated system.
27. (Previously presented): The testing system of claim 1, wherein the testing system monitors an original signal of the digital data in parallel without affecting the automated system.
28. (New): A method of facilitating the testing, audit, and study of the operation of an automated system, the method comprising the steps of:
- a) independently monitoring and collecting signals and data elements being received and generated by the automated system;
 - b) independently monitoring and collecting signals and data elements being exchanged by components and subsystems of the automated system;
 - c) independently collecting video data of the operation of the automated system; and
 - d) presenting collected signals, data elements, and video data during a review process in a manner relating the monitored signals and data elements to the physical events occurring when the signals and messages were transmitted such that a user can evaluate whether the automated system functioned properly during the occurrence of the physical events.